

REMARKS/ARGUMENTS

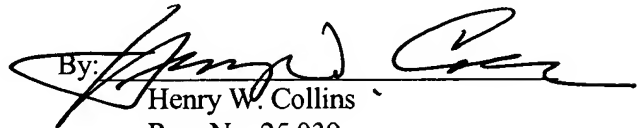
Remarks

In response to the Examiner's communication of June 29, 2005, by the foregoing amendments Applicant has resubmitted corrected Claim 1 with the markings to indicate the changes and has resubmitted the original Claims 2 through 9. With these amendments, it is believed that all of the claims in this application, to wit, Claims 1 through 9 are now in condition for allowance.

For the convenience of the Examiner, a copy of the Amendment and Terminal Disclaimer filed on March 30, 2005, is attached hereto.

It is respectfully submitted that this application is now in condition for allowance and notification of such action is respectfully solicited.

Respectfully submitted,

By: 
Henry W. Collins
Reg. No. 25,039

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Dated: July 20, 2005



Docket No. CRD0943CONT1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Stephen West Confirmation No.: 2435
Appln. No. : 10/729,523
Filed : December 5, 2003
Title : Aneurysm Embolization Device And Deployment System
Art Unit : 3731
Examiner : Gary Jackson

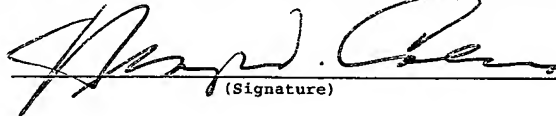
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March 30, 2005

(Date of Deposit)

Henry W. Collins

(Name of applicant, assignee, or Registered Representative)



(Signature)

March 30, 2005

(Date of Signature)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

AMENDMENT

Dear Sir:

In response to the Office Action of October 4, 2004, please amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims, which begins on page 2 of this paper.

Remarks/Arguments begin on page 5 of this paper.

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (Currently amended): An aneurysm embolization device and deployment system for use in placing said embolization device at a preselected position within a vessel of a human body, said embolization device and deployment system comprising:

a deployment catheter having a small diameter lumen extending therethrough and having a proximal section and a distal section, said catheter being formed of a material which is sufficiently flexible to pass through the vessels of the body;

an embolization device including a headpiece having a proximal section and a distal section;

a central connecting member which takes the form of a flexible fiber, said connecting member having a proximal end and a distal end, the proximal end of said connecting member being attached to the distal section of said headpiece;

a spherical member which takes the form of a small diameter ball, said spherical member being carried by said central connecting member; and,

said proximal section of said headpiece being disposed within the distal section of said deployment catheter so that when a fluid pressure is applied to the lumen of said catheter the catheter releases the headpiece at the preselected position.

Claim 2 (Original): An aneurysm embolization device as defined in claim 1, wherein said spherical member is formed from a polymer.

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Claim 3 (Original): An aneurysm embolization device as defined in claim 1, wherein said headpiece and said spherical member is formed from a metallic material.

Claim 4 (Original): An aneurysm embolization device as defined in claim 1, wherein said central connecting member takes the form of a shape memory wire such that, after said aneurysm embolization device is deployed at the preselected position within the vessel said central connecting member tends to assume a predetermined configuration.

Claim 5 (Original): An aneurysm embolization device as defined in claim 1, wherein said central connecting member takes the form of a stretchable fiber.

Claim 6 (Original): An aneurysm embolization device as defined in claim 1, wherein said spherical member includes a plurality of flexible filaments extending outwardly from said spherical member in order to enhance the occlusive effect of said spherical member.

Claim 7 (Original): An aneurysm embolization device as defined in claim 1, wherein said spherical member includes a time-released adhesive coating on the periphery of said spherical member in order to enhance the occlusive effect of said spherical member.

Claim 8 (Original): An aneurysm embolization device as defined in claim 1, wherein said aneurysm embolization includes a plurality of spherical members and a plurality of flexible filaments coupling each of said spherical members to an adjacent spherical member.

Claim 9 (Original): A method for placing an aneurysm embolization device at a pre-selected position within a vessel, the method comprising the steps of:

providing a deployment catheter having a small diameter lumen extending therethrough and being formed of a material which is sufficiently flexible to pass through the vessels of the body, providing an aneurysm embolization device including a headpiece coupled to the distal end of the said deployment catheter; the embolization device includes a central connecting member which takes the form of a flexible fiber, and is attached to the headpiece, and the embolization device includes a spherical member which takes the form of a small spherical ball which is attached to the central connecting member;

introducing said deployment catheter with said aneurysm embolization device into a vessel and positioning said aneurysm embolization device at a pre-selected position within the vessel; and,

releasing said aneurysm embolization device at the preselected site with the vessel.

REMARKS/ARGUMENTS

Remarks

The Examiner's communication of October 4, 2004, together with the references cited therein, has been given careful consideration. After such consideration, and in an earnest effort to place this application in condition for allowance, Applicant has by the foregoing amendments, amended Claim 1 and its dependent Claims 2 through 8 to more clearly define patentable invention over the references of record. Applicant also hereby submits the attached Terminal Disclaimer in response to the double patenting rejection of this application over the claims of commonly assigned U.S. Patent No. 6,692,510. With these amendments, and with the submission of the Terminal Disclaimer, it is believed that all of the claims in this application, to wit, Claims 1 through 9 clearly define patentable invention over the cited references.

The Invention

The present invention is directed toward an aneurysm embolization device and deployment system for use in occluding the flow of blood within a vessel, and more particularly within an aneurysm, of the human body. The deployment system includes a catheter having a small diameter lumen extending therethrough and being formed of a material which is sufficiently flexible to pass through the vessels of the body. The embolization device includes a headpiece and a central connecting member which takes the form of a flexible fiber which is connected to the distal end of the headpiece. At least one spherical member, and preferably a plurality of spherical members, which take the form of small diameter balls, are carried by the flexible fiber. The proximal section of the headpiece is disposed within the distal section of the deployment catheter so that when fluid pressure is applied to the lumen of the catheter the catheter releases the headpiece at the preselected position within the vessel. It is important to appreciate that the present invention serves to embolize, or fill an aneurysm which exists in the

wall of a vessel and in which the multiple spherical members which are carried by a very flexible fiber serve to pack into the aneurysm and prevent, or reduce, the flow of blood through the aneurysm to thereby cause less pressure to be applied within the interior of the aneurysm. Ultimately, the aneurysm should reduce in size and should therefore be less apt to rupture.

The Cited References

The cited U.S. Patent No. 5,980,548 to Evans, et al., is directed toward a system for revascularization of the human heart. More particularly, this reference teaches the use of various shaped "inserts" which are inserted into the wall of the myocardium in order to initiate the growth of new vessels within the wall of the heart. As illustrated in Figures 9A through 9S, it is possible to use one of many different shapes or configurations of inserts to cause this revascularization process to be initiated. There is no suggestion in this reference of providing a device which would embolize an aneurysm which exists in the wall of a vessel, and in fact the "inserts" are actually inserted into an area of the myocardium wall which is completely filled with tissue prior to the insertion of the insert. Still further, there is no suggestion in this reference of applying a fluid pressure to a deployment catheter in order to drive the inserts into the myocardium. It is doubtful that it would even be possible to create enough pressure within a catheter to drive these inserts into tissue of the myocardium. Certainly, it would not be obvious.

The cited U.S. Patent No. 6,299,619 to Greene, et al., discloses a plurality of cylindrically shaped embolizing elements disposed at spaced intervals along a filament. The embolizing device may then be placed within a catheter and is then pushed through the catheter until the device is pushed out of the distal end of the catheter and into the aneurysm. The embolizing device including the cylindrically shaped embolizing elements then serve to partially fill the aneurysm in order to reduce blood flow through the aneurysm. There is no suggestion in

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this reference of an embolization device which includes a plurality of small diameter spherical balls placed along a flexible fiber, nor is there any suggestion in this reference of a deployment system which utilizes a fluid pressure to cause the deployment catheter to release the embolization device at a preselected position.

The cited U.S. Patent No. 3,095,877 to Rowan, et al., discloses the concept of packing a deep wound with a plurality of absorbent balls secured to a thread in order to prevent heavy bleeding, or serious hemorrhage of the wound. This patent does not appear to be particularly pertinent to the field of embolization devices for aneurysms.

Similarly, the cited U.S. Patent No. 5,833,642 to McCabe, et al., discloses a device for absorbing wound exudates which is comprised of a series of interconnected square or rectangular perforated bags made of a substance having a maximum thickness of one millimeter. This device for absorbing fluid from wounds would not appear to be particularly relevant to the subject invention.

The Rejection

The Examiner has rejected Claims 1 through 9 under the "judicially created doctrine of obviousness-type double patenting as being unpatentable over . . . U.S. Patent No. 6,692,510." Applicant has submitted the attached Terminal Disclaimer terminally disclaiming that portion of the patent which would issue from the subject patent application which extends beyond the expiration of the commonly assigned U.S. Patent No. 6,692,510. It is believed that with the submission of this Terminal Disclaimer, this rejection has been overcome by Applicant.

The Examiner has rejected Claims 1, 2, 5, 7 and 8 under "35 U.S.C. 102(b) as being anticipated by Evans, et al." The Examiner has indicated that "The patent to Evans et al discloses a device capable of occluding blood flow. . ." Actually, the "inserts" disclosed by the

Evans reference do not serve the purpose of occluding blood flow, but in fact are inserted into solid tissue in the wall of the myocardium in order to initiate the growth of blood vessels.

Contrary to the embolization device of the present invention, the "inserts" of Evans are pressed into a region which is entirely filled with tissue in order to recanalize the tissue by causing vessels to grow through the tissue.

The subject invention is directed toward an embolization device and method of use for partially filling an aneurysm which may exists in the wall of a vessel, which aneurysm is somewhat "balloon shaped" and is generally hollow except for the flow of blood through the aneurysm. By placing an embolic device, such as that disclosed and claimed in the present invention, into an aneurysm the device tends to reduce the blood flow through the aneurysm and permit tissue to ingrow around the embolic device in order to ultimately fill, or partially fill, the hollow aneurysm. While it is true that one of the many devices such as that shown in Figure 9F of the Evans reference appears to show cylindrical balls placed along a cable for providing recanalization of the heart wall, this device fails to disclose or suggest the claimed invention. For example, there is no disclosure in this reference of an embolization device, there is no disclosure of a deployment catheter for placing an embolization device within an aneurysm in which a fluid pressure is applied to the lumen of the catheter in order to release the embolization device. Also, the catheter disclosed in the Evans, et al. reference would appear to be a rather stiff and rigid device as opposed to a deployment catheter formed of a material which is sufficiently flexible to pass through the vessels of the body. This reference which discloses a medical device used for a vastly different purpose, does not teach a structure of the type as positively claimed in the subject application.

Claims 1 through 9 have been rejected "under 35 U.S.C. 103(a) as being unpatentable over Greene et al. . . in view of Evans et al. . . Rowan et al. . . and McCabe et al." It appears that the Examiner has taken a group of four references, of which only one relates to the subject matter of the present patent application, and has combined these references in an attempt to reconstruct Applicant's invention. Of these four references, Greene, et al. is the only one that remotely relates to an embolization device and deployment system for the embolization device. As discussed, the Evans reference relates to "inserts" to be placed in the wall of the myocardium; the Rowan, et al. reference relates to a surgical packing device for large wounds; and, the McCabe, et al. reference relates to a device for absorbing wound exudates. These later references would not appear to be particularly relevant to the subject invention.

Of these four references, the patent to Greene, et al. discloses an embolization device which includes a series of highly expansible cylindrical embolization elements placed on a filament. This device presumably would provide embolization of an aneurysm, however, the structure of the device is quite different from that disclosed in the present application and there is no suggestion in this reference of a deployment system as is disclosed and claimed in the present application. For example, there is no suggestion in this reference of an embolic device having a headpiece and a flexible fiber which carries a plurality of small cylindrical balls for purposes of embolization. Similarly, there is no suggestion in this reference of a deployment catheter in which a fluid pressure is applied to the lumen of the catheter in order to release the embolization device at a preselected position. These features are positively recited in Claim 1 and its dependent Claims 2 through 8 and are neither disclosed nor suggested by this reference or any of the other cited references.

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With respect to Claim 9, again, the cited references do not disclose nor teach the method of providing an aneurysm embolization device including a headpiece coupled to the distal end of a deployment catheter in which the embolization device includes a central connecting member which takes the form of a flexible fiber and is attached to the headpiece and also includes one or more spherical members, or balls, which are carried by the fiber and subsequently introducing the deployment catheter into a vessel and releasing the aneurysm embolization device at a preselected cite. These method steps are neither disclosed nor suggested by the cited references.

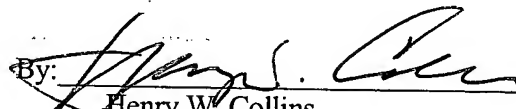
Accordingly, the present application discloses an aneurysm embolization device and deployment system which is quite different from that disclosed in the cited references. The claims in this application positively recite a structure which is not present in these references.

Accordingly, it is submitted that none of the cited references taken separately, or in any combination, thereof suggest the concept of the present invention.

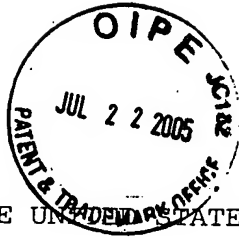
In view of the foregoing remarks, Applicant respectfully submits that Claims 1 through 9 clearly define patentable invention over the teachings of Evans, et al., Greene, et al., Rowland and McCabe, et al.

It is respectfully submitted that this application is now in condition for allowance and notification of such action is respectfully solicited.

Respectfully submitted,

By: 
Henry W. Collins
Reg. No. 25,039

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One Johnson & Johnson Plaza
New Brunswick, NJ 08933-7003
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Dated: March 30, 2005



DOCKET NO. CRD0943CONT1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Stephen West

Serial No.: 10/729,523

Art Unit: 3731

Filed : December 5, 2003

Examiner: Gary Jackson

For : Aneurysm Embolization Device And Deployment System

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

TERMINAL DISCLAIMER

Dear Sir:

Your Petitioner, Cordis Neurovascular, Inc., a corporation of the State of Florida, having a registered office at 14000 N.W. 57th Court, Miami Lakes, Florida 33014, represents that it is the Assignee of the entire right, title and interest in and to the subject matter disclosed in the above-captioned patent application by virtue of it being a continuation of U.S. Patent Application Serial No. 10/141,411, now issued as U.S. Patent No. 6,692,510. Cordis Neurovascular, Inc. is the owner of U.S. Patent No. 6,692,510, as evidenced by the attached copy of an Assignment recorded in the United States Patent and Trademark Office on May 8, 2002, Reel/Frame: 012895/0024. Aforementioned U.S. Patent Application Serial No. 10/729,523, filed on December 5, 2003 is a continuation of U.S. Patent No. 6,692,510.

Your Petitioner, Cordis Neurovascular, Inc. hereby disclaims, under the provisions of 35 USC 253 and 37 CFR 1.321 and 3.73, the terminal part of any patent granted on application Serial No. 10/729,523 which would extend beyond the expiration date of United States Patent No. 6,692,510 and hereby agrees that any patent so granted on application Serial No. 10/729,523 shall be enforceable only for and during such period that the legal title of said patent shall be the same

Serial No. 10/729,523

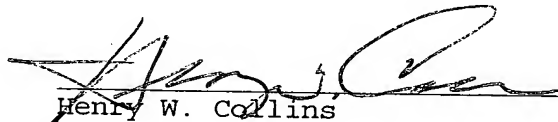
as the legal title to United States Patent No. 6,692,510, this agreement to run with any patent granted on application Serial No. 10/729,523 and to be binding upon the grantee, its successors or assigns.

The Terminal Disclaimer fee of \$110.00 and any additional fees which may be owed in connection with the filing of this Terminal Disclaimer can be charged to Johnson & Johnson Deposit Account No. 10-0750/CRD0943CONT1/HWC. Three copies of this sheet are enclosed.

Signed at Miami Lakes, Florida this 30th day of March, 2005.

Respectfully submitted,

Cordis Neurovascular, Inc.


Henry W. Collins
Assistant Secretary

Johnson & Johnson
One Johnson & Johnson Plaza
New Brunswick, NJ 08933-7003
(786) 313-2707
Date: March 30, 2005

Dep Act Trans No 67818

A S S I G N M E N T

Serial No.: Unknown
Filed: May 8, 2002

WHEREAS, Clinton B. West, residing at 16570 N.W. 5th Court, Pembroke Pines, Florida 33028, (hereinafter called "Assignor"), has made certain new and useful inventions or discoveries relating to

Aneurysm Embolization Device And Deployment System

for which he has this day executed an application for Letters Patent of the United States; and

WHEREAS, Cordis Neurovascular, Inc., a corporation of the State of Florida, (hereinafter called "Assignee"), is desirous of acquiring the entire right, title, and interest therein;

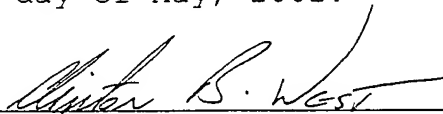
NOW, THEREFORE, BE IT KNOWN that for and in consideration of the sum of One Dollar and other valuable considerations to him moving, the receipt of which is hereby acknowledged, Assignor has sold, assigned, and transferred, and does hereby sell, assign, and transfer unto said Assignee the entire right, title, and interest in and to all said inventions and discoveries disclosed in said application whose identification above by serial number and filing date, when available is hereby authorized, and in and to said application, all substitutions, divisions, and continuations thereof, and in and to all Letters Patent, United States and foreign, that may be granted for said inventions and discoveries, and in and to all extensions, renewals, and reissues thereof, the same to be held and enjoyed by said Assignee, its successors and assigns, as fully and entirely as the same would have been held and enjoyed by Assignor if this Assignment and sale had not been made;

And Assignor hereby authorizes and requests the Commissioner of Patents of the United States to issue said Letters Patent in accordance with this Assignment;

And for the consideration aforesaid, Assignor covenants and agrees with said Assignee that he has a full and unencumbered title to the inventions and discoveries above described and hereby assigned, which title he warrants unto said Assignee, its successors and assigns;

And for the consideration aforesaid, Assignor further covenants and agrees that he will, whenever requested, but without cost to him promptly communicate to said Assignee or its representatives any facts known to him relating to said inventions and discoveries, testify in any interference or legal proceedings involving said inventions and discoveries, and execute any additional papers that may be necessary to enable said Assignee or its representatives, successors, nominees, or assigns to secure full and complete protection for the said inventions and discoveries or that may be necessary to vest in said Assignee the complete title to the said inventions and discoveries and patents hereby conveyed and to enable it to record said title.

IN TESTIMONY WHEREOF, Assignor has hereunto set his hand and seal this 8 day of May, 2002.


Clinton B. West

STATE OF FLORIDA
COUNTY OF DADE

The foregoing Assignment was acknowledged before me this 8th day of May, 2002, by Clinton B. West, who is personally known to me or who has produced _____ as identification.


Notary Public

